



**JAI HIND COLLEGE  
BASANTSING INSTITUTE OF SCIENCE  
&  
J.T.LALVANI COLLEGE OF COMMERCE  
(AUTONOMOUS)**

"A" Road, Churchgate, Mumbai - 400 020, India.

**Affiliated to  
University of Mumbai**

Program: B.Sc.

Proposed Course: Life Sciences (Applied Component)

Food Nutrition, Preservation and Dietetics

Semester-V

**Credit Based Semester and Grading System (CBCS) with effect  
from the academic year 2020-21**

*T.Y.B.Sc. Life Sciences Applied Component Syllabus*

**Academic year 2020-21**

**Semester – V**

<b>Theory</b>				
<b>Course Code</b>	<b>Unit</b>	<b>Topics</b>	<b>Credits</b>	<b>Lectures/ week</b>
<b>Food Nutrition, Preservation and Dietetics – I</b>				
<b>SLSC5AC</b>	<b>I</b>	Food-chemistry	<b>2.5</b>	<b>04</b>
	<b>II</b>	Chemical Constituents of Food groups		
	<b>III</b>	Microbial contaminants of foods		
	<b>IV</b>	Food borne diseases and Food poisoning &Contaminants		
<b>Practical</b>				
<b>SLSC5AC PR</b>	Practical of Course SLSC5AC		<b>2.5</b>	<b>04</b>

### Semester V – Theory

<b>Course Code:</b> SLSC5AC	<b>Course Title: Food Nutrition, Preservation and Dietetics – I</b>	<b>2.5 Credits</b>
	<b>THEORY</b>	<b>60 lectures</b>
<b>Sub-Unit</b>	<b>Unit – I: Food Chemistry (Occurrence, chemistry, source, structure, and composition)</b>	<b>15 L</b>
<b>1.</b>	Carbohydrates- mono, di, oligo, polysaccharides. Example- sugar, starch, glycogen, pectin, gums, cellulose, hemicellulose	
<b>2.</b>	Proteins-aminoacids, essential and non-essential, classification of proteins, structure of protein	
<b>3.</b>	Lipids-properties, functions, sources, classification of fatty acids, triglycerides, steroid, phospholipids	
<b>4.</b>	Fat soluble vitamins (A, D, E, K) and water-soluble vitamins (B complex, vitamin C): occurrence, chemistry, daily requirements	
<b>5.</b>	Inorganic ions: calcium, phosphorus, iron, sodium, potassium, magnesium and trace elements (dietary sources and biochemical importance)	
<b>Sub-Unit</b>	<b>Unit – II: Chemical constituents of Food groups (Characteristics, biochemical importance and their metabolic aspects)</b>	<b>15 L</b>
	Cereals and Pulses Wheat, Rice, Corn Fruits & Vegetables Milk and milk products Meat, fish and poultry Oil seeds Spices	
<b>Sub-Unit</b>	<b>Unit – III: Microbial contaminants of foods Microbial contaminants of foods with special reference to spoilage of:</b>	<b>15 L</b>
<b>1.</b>	Cereals- bread, flour, meals, cakes, other bakery products	
<b>2.</b>	Sugar and sugar products- honey, candy, maple syrup, sucrose	
<b>3.</b>	Fruits and vegetables- prepared and cooked	
<b>4.</b>	Meat and meat products- methods to detect spoilage	
<b>5.</b>	Fish and sea foods- methods to detect spoilage	
<b>6.</b>	Egg and poultry	
<b>7.</b>	Milk and milk products- milk, cheese, butter, dried powder	

8.	Canned food spoilage- types and causes.	
<b>Sub-Unit</b>	<b>Unit – IV: Food borne diseases and food poisoning &amp; Contaminants</b>	<b>15 L</b>
1.	Food borne diseases and food poisoning i. Bacterial ii. Viruses iii. Rickettsia iv. Mycotoxins v. Parasites	
2.	Contaminants Pesticide, insecticide, herbicide, fungicide, rodenticide Antibiotic residue Toxic meal residue Hormonal residue	
3.	Brief introduction to types of microbes responsible for the spoilage of foods i. Bacteria ii. Protozoa iii. Yeast iv. Fungi	
<b>References</b>	<ol style="list-style-type: none"> <li>1) Food Microbiology, Frazier and Westhoff, Tata McGraw Hill Publishers, New Delhi</li> <li>2) Clinical Dietetics and Nutrition, Antia F P, 4<sup>th</sup> edition, 1997, Oxford University Press, New Delhi</li> <li>3) Nutrition Science, B. Srilaxmi, New age international (P)Ltd</li> <li>4) Dietetics, B. Srilaxmi, 4<sup>th</sup> edition, New age international (P)Ltd</li> <li>5) Laboratory manual in Biochemistry, J. Jayaraman, New Age International (P)Ltd</li> <li>6) Biochemical Methods, S. Sadasivan and A. Manickam 2<sup>nd</sup> edition, New age international (P) Ltd, Tamilnadu Agricultural University, Coimbatore</li> <li>7) Fundamentals of Biochemistry, Dr. A. C. Deb, New Central book agency (P)Ltd</li> <li>8) Textbook of Biochemistry, Edward Staunton West, Wilbert R. Todd, Howard S. Mason, John van Bruggen, 4<sup>th</sup> edition, Oxford and IBH Publishing Co. Pvt. Ltd</li> <li>9) Fundamentals of Analytical Chemistry, Douglas A. Skoog, Donald M. West, F. James Hollar, 6<sup>th</sup> Edition, Saunders College Publishing</li> <li>10) Introductory Practical Biochemistry, S. K. Sawhney, Randhir Singh, Narosa Publishing House</li> <li>11) An Introduction to Practical Biochemistry, David T. Plummer, 3<sup>rd</sup> edition, Tata McGraw Hill Publishers, New Delhi</li> <li>12) Principles of Biochemistry, Albert Lehninger, David Nelson, Michael Cox, CBS publishers and distributors</li> <li>13) A handbook of Practical Immunology, Talwar G. P, Vikas Publishing House Pvt Ltd.</li> <li>14) Biochemistry, Satyanarayan U, Books and Allied Ltd</li> <li>15) Textbook of Microbiology, Pelczar, Michael J, Tata McGraw Hill Publishing Co. Ltd</li> </ol>	

	16) GeneralBiochemistry, WeilJ.H, NewAgeInternational(P)Ltd
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## Semester V – Practical

Course Code SLSC5ACPR		2.5 Credits
1.	Proximate analysis of soyabeanseeds: a) Estimation of moisture content b) Estimation of protein by Biuret method c) Estimation of Iron by KCNS method (Wong's method)	
2.	Egg Chemistry: a) Isolation of cholesterol and lecithin b) Estimation of cholesterol by Zak-Zlatsky method	
3.	Characterisation of fats: a) Determination of iodine number of groundnut oil b) Determination of saponification value of groundnut oil	
4.	Estimation of vitamin C	
5.	Determination of common food adulterants by simple tests	
6.	Qualitative analysis of Tea and Coffee extracts	
7.	Separation of Carotenoids from Carrots (by TLC)	

## Evaluation Scheme

### [A] Evaluation scheme for Theory course

#### I. Continuous Assessment (C.A.) - 40 Marks

- (i) C.A.-I : Test – 20 Marks of 40 min. duration
- (ii) C.A.-II : Project – Planning a diet for a specific nutritional requirement (Diabetic/ Hypertension/ Senior citizens etc). Preparation of recipe with emphasis on nutritional requirements.

#### II. Semester End Examination (SEE)- 60 Marks

### [B] Evaluation scheme for Practical courses

#### I. Continuous Assessment (C.A.) For each Practical – 40 Marks

#### II. Semester End Examination (SEE) For each Practical – 60 Marks

**Grand total of Practical = 100**

